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## An Unusual Thymic Tumor with Possible Immunologic Correlation


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IN THE CASE here reported a thymic tumor was unusual in that in addition to epithelial cells the second major component consisted of plasma cells rather than of lymphocytes. No report of a similar tumor was found in a search of the literature. Besides the rarity, the possibility that it may throw new light on the relationship of the thymus to immunologic phenomena makes the case worthy of report.

#### REPORT OF A CASE

The patient, a 60-year-old woman, complained of severe acute left anterior chest pain of four to five days' duration. An x-ray film showed a large mass in the left anterior mediastinum. No evidence of metastasis was observed in x-ray studies of the bones. The patient had had radical mastectomy and radiotherapy for a carcinoma of the left breast 15 years previously. Her mother had died at age 50 of carcinoma of the breast, her father at age 75 of carcinoma of the prostate and a brother at age 45 of a brain tumor. Upon physical examination the only abnormality noted was mild hypertension. Myasthenia gravis was not present.


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At thoracotomy a 10 x 7 x 5 cm lobulated, encapsulated firm tumor mass weighing 170 gm was removed. This mass did not involve the mammary chain of nodes or vessels and was not densely adherent to or invasive of any of the surrounding structures. On cross-section the tumor was firm, tan and homogenous, with a lobulated appearance.

Microscopically, it was seen to consist largely of the sheets of epithelial cells typical of many thymomas. Lymphocytes, however, were infrequent: the other major component consisted of plasma cells, many demonstrating Russell body formation. Thymic fragments outside the tumor revealed some plasma cell infiltration and also lymph follicle formation, and adjacent lymph nodes also contained increased numbers of plasma cells.

Hemoglobin content was 10.7 gm per 100 ml and erythrocytes numbered 3,300,000 per cu mm. Morphologically the red cells were within normal limits. On one occasion reticulocytes numbered only 0.11 per cent of the total but later rose to 2.4 per cent. The erythrocyte sedimentation rate was 50 mm in one hour. No Bence-Jones protein was present in the urine. Results of the direct and indirect Coombs tests were negative, as was the latex test. Serum electrophoresis demonstrated an increase of the gamma globulin fraction to 26.6 per cent (normal 7 to 16 per cent). Ultracentrifuge analysis of the serum proteins was also done and revealed the S7 class (gamma globulin) to be 3.0 gm per 100 ml (normal

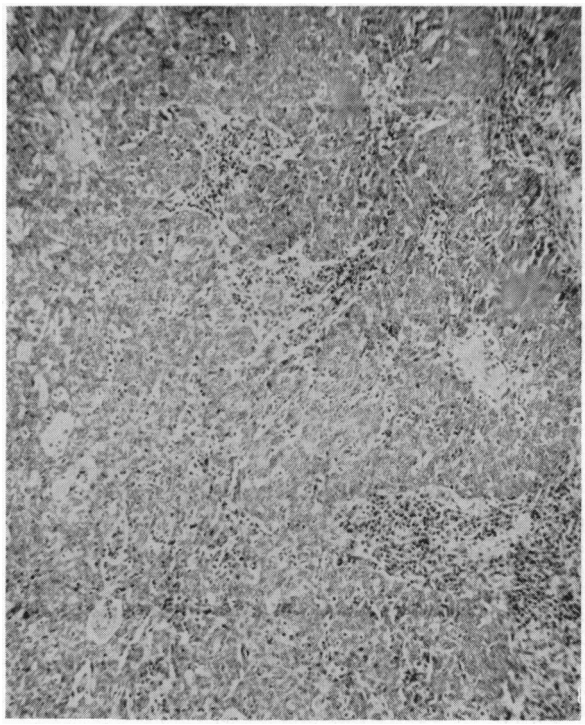

Figure 1.—Thymic tumor composed of large sheets of epithelial cells. The small round cells proved to be plasma cells rather than the customary lymphocytes (× 100).

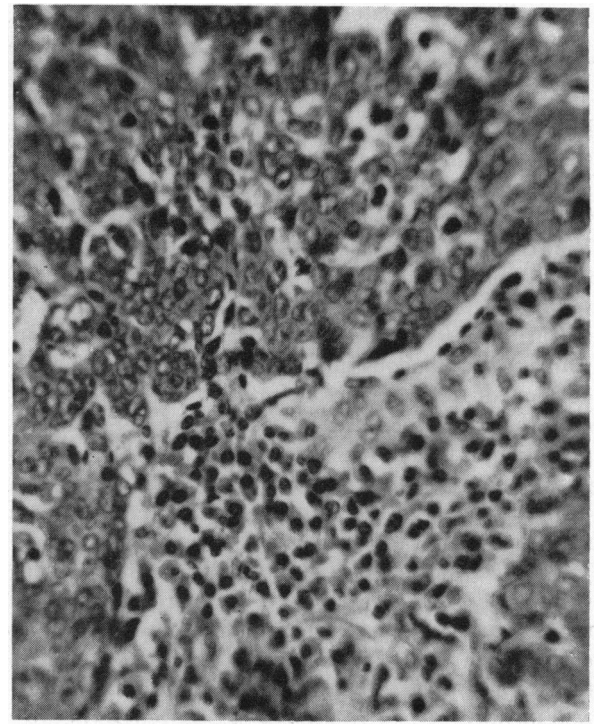

Figure 2.—Thymic tumor. The epithelial cells have a uniform morphology and are typical of those found in the most common type of thymomas. The other component consists of characteristic plasma cells (× 430).

1.34, standard deviation 0.34). The remainder of the serum proteins were within normal limits. Bone marrow aspiration revealed no significant abnormalities and there were neither unusual numbers nor abnormal forms of plasma cells present.

## DISCUSSION

The findings in the present case — a thymic tumor having unusual histologic features in a patient with an increase in the gamma globulin component of serum proteins and an accelerated erythrocyte sedimentation rate — can be correlated hypothetically with the probable immunologic role of the thymus.

Miller[4,5] removed the thymus from mice at birth and then noted decreased lymphocytes in the peripheral blood, lack of germinal centers in nodes, increased incidence of infections and tolerance to skin homografts. He suggested that the embryonic thymus produces the originators of the immunologically competent cells.

Both Miller[4,5] and Burnet[1] said that in the normal mammal, even with intense antigenic stimulation, few if any plasma cells are present in the thymus. Burnet postulated two types of lymphocytic response: If lymphocytes come into contact with their corresponding antigens outside the thymus,

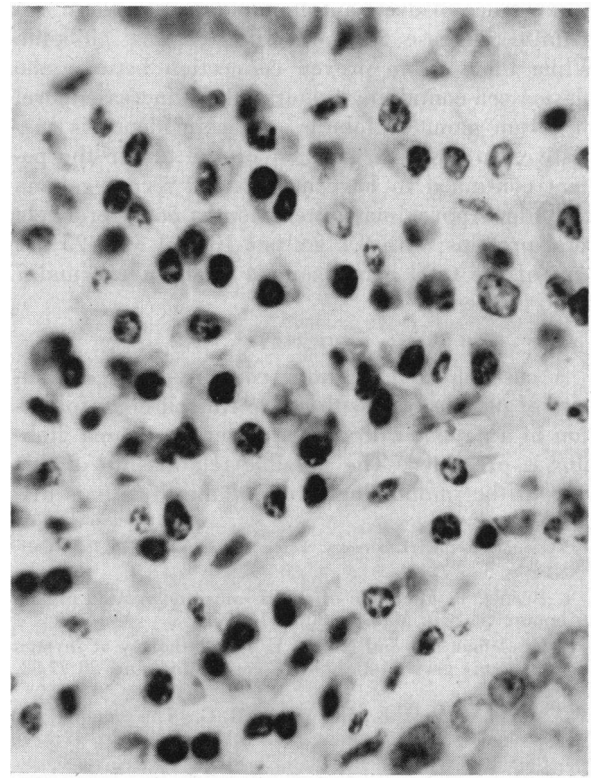

Figure 3.—Thymic tumor. The plasma cells are mature. Some binucleate forms are present and Russell body formation is present in one of the cells in the center of the field (× 970).

they will be stimulated to proliferate; if the contact is within the thymus, that clone will be suppressed. Marshall and White[7] induced germinal centers and plasma cell formation in the thymus of guinea pigs by direct injection of antigen. They said that the thymus of the guinea pig and rat possesses a barrier against the entry of antigen from the blood and that this barrier may be broken down by local trauma. Viewed in either way, there should be no active antibody producing cells (plasma cells) within the thymus.

Burnet described a strain of mouse (NZB-BL) in which a spontaneous autoimmune hemolytic anemia developed. In these mice before the onset of the anemia, the thymus contained germinal centers, incomplete lymph follicles and plasma cells, suggesting the possibility that autoimmune disease has its origin in the thymus. In the study of the thymus in myasthenia gravis, Castleman and Norris[2] noted that in 75 per cent of cases there were germinal centers within the thymus that were not normally present there. Burnet further suggested that thymic biopsy early in the course of disseminated lupus erythematosus might reveal features similar to those found in NZB-BL mice.

In the present case a possible analogous situation to that of the NZB-BL mice existed in a human patient. Although at present in this patient there was no evidence of overt autoimmune disease, there is a definite increase in the serum gamma globulin. While there is no proven connection between the plasma cell-containing tumor and the increased level of serum gamma globulin, the coincidence is suggestive. In spite of excision of the tumor the patient continued to have an elevated serum gamma globulin. Approximately ten months postoperatively total proteins were 8.1 gm per 100 ml with 25 per cent of the total being gamma globulin (normal 7 to 16 per cent).


### SUMMARY

A case of thymic tumor containing large numbers of plasma cells with active Russell body formation in a patient with increased serum gamma globulin is presented. The possible relationship of this case to the immunologic role of the thymus is discussed.



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## Massive Rectal Bleeding From A Cholecystocolic Fistula


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ALTHOUGH MASSIVE RECTAL BLEEDING is a relatively common occurrence, such bleeding secondary to a cholecystocolic fistula is decidedly rare. Review of the English medical literature reveals only one previous report of massive rectal bleeding from a cholecystocolic fistula.[1] The following report is of the second such case.

### REPORT OF A CASE

A 72-year-old woman was admitted to hospital with the chief complaint of painless, bright red rectal bleeding of four hours' duration. She had had two previous minor episodes within the three weeks preceding admission, and proctosigmoidoscopy and barium enema studies had been done. They had revealed no abnormality.

Significant in the past history was a cholecystostomy performed in 1922. Although relatively asymptomatic for the next 37 years, the patient had begun to experience increasing upper abdominal distress after eating fried and fatty foods. Double intensification cholecystography with Telepaque® had failed to visualize the gallbladder. There was no history of jaundice, acholic stools, dark urine, chills or fever.

At physical examination jaundice was noted and the patient's lower garments and thighs were stained with bright red blood. Blood pressure was 96/44 mm of mercury and the pulse rate 108. No masses were felt in the abdomen and no tenderness was elicited. Proctosigmoidoscopy showed fresh and old blood in the rectum and lower sigmoid, but no bleeding point could be identified.

The initial hemoglobin content was 9.8 gm per 100 ml and the hematocrit was 29 per cent. Leukocytes numbered 18,700 per cu mm and the differential showed a shift to the left. The platelet count was within normal limits, A series of liver function tests were reported as follows: Serum bilirubin 5.8 mg per 100 ml (4.3 mg per cent direct); alkaline phosphatase, 3.9 Bessey Lowry units. Serum glutamic oxaloacetic transaminase 100 units; prothrombin time, 46 per cent; serum protein, 6.06 gm per 100 ml with an albumin-globulin ratio of 3.4:2.6.

The patient required a total of two units of whole blood and 500 ml of 5 per cent albumin for blood


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